

Application No. 10/743,389

Docket No.: 21581-00310-US

Amendment dated June 27, 2006

Reply to Office Action of February 27, 2006

REMARKS

Claims 1-3, 7-11, 13-15, 17, 18 and 21 are now in the application. Claim 1 has been amended by deleting "a melamine group". Claims 2 and 21 have been amended by reciting "consisting of" in place of "comprising". Claims 14 and 17 have been amended to present them in independent form and to also recite "consisting of". Claim 13 has been amended to recite "claim 3" in place of "3" for purposes of clarification and not to limit its scope. Claims 22-26 have been newly added and find support at page 19, line 29 to page 20, line 13 of the specification. The amendments to the claims and the newly presented claims 22-26 do not introduce any new matter.

Claims 2, 14, 17 and 21 were rejected under 35 USC 102(b) as being anticipated by U.S. Patent 6,312,812 to Hauser. Hauser does not anticipate claims 2, 14, 17, and 21. Claims 2, 14, 17 and 21 now recite "consisting of" and therefore exclude the presence of components not expressly stated in these claims. On the other hand, Hauser requires a number of components that are excluded from claims 2, 14, 17 and 21. In other words, Hauser fails to disclose or suggest a chemical conversion coating agent that consists essentially of the components recited in claims 2, 14, 17 and 21.

Claims 1-3, 7-11, 13-15, 17, 18 and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,449,415 to Dolan in view of U.S. Patent 5,653,832 to McMillen et al. (hereinafter also referred to as "McMillen"). Dolan and McMillen fail to render obvious claims 1-3, 7-11, 13-15, 17, 18 and 21.

With respect to claim 1 as amended and claims dependent thereon, the invention relates to a chemical conversion coating agent that comprises a water-soluble epoxy compound containing an isocyanate group. Use of this agent, makes it possible to apply a good chemical conversion treatment to various metals such as iron, zinc and aluminum, which is equal to or better than chemical conversion treatment from using zinc phosphate. Neither Dolan nor McMillen disclose "a water-soluble epoxy compound containing an isocyanate group" as components of the chemical conversion coating agent. McMillen suggests "an epoxidized melamine" (LSE-120, TABLE I) as a component in the chemical conversion coating agent, but does not disclose a water-soluble epoxy compound containing an isocyanate group. Further,

Application No. 10/743,389

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Dolan and McMillen do not disclose that the above-mentioned effect can be obtained by using a water-soluble epoxy compound containing an isocyanate group as a component of the chemical conversion coating agent. Therefore, amended claim 1 and claims dependent thereon are not obvious under 103(a) on the basis of Dolan and McMillen.

With respect to claims 2, 14, 17 and 21, these claims as amended now recite "consisting of" and therefore exclude the presence of components not expressly stated in these claims. Use of the chemical conversion coating agent makes it possible to apply good chemical conversion treatment to various metals such as iron, zinc and aluminum.

The chemical conversion coating agents of amended claims 2, 14, 17 and 21 do not contain phosphorous. Therefore, burden on the environment due to phosphorous does not occur. Also, since the chemical conversion coating agents of amended claims 2, 14, 17 and 21 do not contain phosphorous, formation of sludge such as iron phosphate and zinc phosphate does not occur. Therefore, the composition excluding phosphorous gives an excellent effect as above-mentioned.

Dolan does not disclose the chemical conversion coating agents of amended claims 2, 14, 17 and 21. The composition of Dolan comprises (C) a component of phosphorous-containing inorganic oxyanions and/or phosphate anion (Col. 2, lines 41-42). Namely, the composition of Dolan comprises phosphorous as an essential component.

McMillen does not disclose the agents of amended claims 2, 14, 17 and 21. The composition of McMillen contains the reaction product of an epoxy-functional material and an alkanolamine, and a Group IV-B metal ion (claim 1). Also McMillen suggests water-dispersible organic solvents, such as alcohol (col. 6, lines 25-31), and surfactants, such as sodium lauryl sulfate (col. 6, lines 36-53), as optional components in the composition.

In addition, the composition of Dolan is applied to substrates rinsed by an aqueous cleaner (col. 9, lines 45-56), while the composition of McMillen is applied to phosphated metal substrates, e.g. cold rolled steel panels treated by an iron phosphate conversion coating (claim 1, and col. 13, lines 19-36). Namely, both compositions are used for different purposes. So, there is no motivation to combine the composition of Dolan with the composition of McMillen.

Also, since neither Dolan nor McMillen disclose the chemical conversion coating agent of amended claims 2, 14, 17 and 21 and the present invention is not rendered obvious on basis of

Application No. 10/743,389

Docket No.: 21581-00310-US

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these references. Therefore, amended claims 2, 14, 17 and 21 are not obvious under USC 103(a) on the basis of the above references.

Concerning newly added claims 22-26 such are concerned with a method of treating a metal surface with the chemical conversion coating agents of claims 1, 2, 14, 17 and 21; respectively. As stated in these claims, "phosphorous" is not substantially used in these methods of treating a metal surface. Due to phosphorous being substantially not used in these methods the above-mentioned beneficial effects are achievable.

As above-mentioned, the composition of Dolan comprises phosphorous. Also, the composition of McMillen is applied to phosphated metal substrates. Namely, both treatment methods of Dolan and McMillen are methods using phosphorous.

Further, the coated metal substrate of Hauser is obtained by a second pretreatment composition comprising a reaction product of epoxy-functional material and at least one material selected from the group consisting of phosphorous-containing material, amine-containing materials, sulfur containing materials and mixtures thereof. Namely, the treatment method of Hauser is one that can use phosphorous. Using phosphorous causes many problems, as above-mentioned. Namely, to provide the method of treating a metal surface without phosphorous has extremely important technical significance. Therefore, claims 22 to 26 are not obvious under USC 103(a) on the basis of the above references.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

In the event the Examiner believes another interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number noted below.

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NO. 4204 P. 16/16

Application No. 10/743,389

Docket No.: 21581-00310-US

Amendment dated June 27, 2006

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Please charge any additional fees that may be due with this response or credit any overpayment to our Deposit Account No. 22-0185, under Order No. 21581-00310-US from which the undersigned is authorized to draw.

Dated: June 27, 2006

Respectfully submitted,

By 

Burton A. Amernick

Registration No.: 24,852

CONNOLLY BOVE LODGE & HUTZ LLP

1990 M Street, N.W., Suite 800

Washington, DC 20036

(202) 331-7111

(202) 293-6229 (Fax)

Attorney for Applicant